Pest Update (February 17-24, 2010)

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John Ball, Forest Health Specialist, Extension Forester

Email: john.ball@sdstate.edu
Phone: 605-688-4737
Samples sent to: John Ball
Horticulture, Forestry, Landscape and Parks
Rm 201, Northern Plains Biostress Lab
North Campus Lane
South Dakota State University
Brookings, SD 57007-0996

Available on the net at:
http://www.state.sd.us/doa/Forestry/educational-information/Pest-Alert-Archives.htm.

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So what do I plant for a windbreak?

By now almost everyone in the state is aware of the impending arrival of the emerald ash borer. The borer, first detected in Michigan in 2002, was found in Minnesota and western Wisconsin by 2009 and I am certain new discoveries will appear this spring. The emerald ash borer is a tree-killer, no North American ash, regardless of species, will survive an attack hence every ash windbreak in the state is vulnerable. The beetle is well suited to the South Dakota climate so there is no hope that our winters – harsh as they have been this year – will kill the insect.

The beetle will not appear at once throughout the state nor when it is eventually found in South Dakota does it mean that we will loss all our windbreaks at once

or even over a short time period. If the beetle is discovered in Codington County, the ash trees in Hamlin or Brookings might still escape attack for a decade. The state has a excellent plan to contain and slow the spread of the beetle once it is detected here and while it will be impossible to eliminate the borer, the spread can be slowed through quarantines and alerting county residents to the dangers of moving firewood or other ash wood products such as chips or pallets that, if improperly made or treated, may contain live larvae.

Since it is highly unlikely that the insect will infest the entire state at one time we will have time to prepare and one thought would be to start planting other tree species now. About 1/3 of our planted trees are ash and the sooner we begin to diversify our plantings the less the impact will be when the insect does arrive. We have a limited choice of windbreak tree in South Dakota due to our harsh climate and tough soils but there are still a number of species to consider. This short list is some of the medium to tall deciduous tree to consider for planting in a windbreak. I have included a conifer, the larch, but remember this is a deciduous conifer, dropping its needles every autumn.

Black cherry (*Prunus serotina*) – is native as far north and west as central Minnesota and north central Iowa. There are even a few native trees in Dakota Dunes, South Dakota, just across the river from Iowa. The tree is surprisingly hardy in the state with good examples of windbreak and ornamental plantings as far north and west as Faulkton and Platte. Survival has been about 70 to 80 percent and the growth rate about 1.5 feet per year. It may grow even further west into Gregory County along the river but not likely further north as it has not performed well in North Dakota. The tree does best on well-drained soil and declines rapidly on wet soils. Black cherry does produce a cherry, small about 1/3 inch, in August that can be used in jams and wines but too sour for eating off the tree. There are only few pest problems but the tree itself can be a problem as the wilted foliage is toxic to horses. The problem is cyanide build-up in the foliage as it wilts with the most poisonous being leaves that have wilted for several days, as will occur with a broken branch after storm. The dried fallen leaves are not considered poisonous.

Bur oak (*Quercus macrocarpa*) – is *the* tree for South Dakota being native to the entire state except for a small area in the southwest It is also native to almost all of North Dakota. Survival has been very good, above 90 percent, and the growth rate better than most people would expect, about 1.5 to 2 feet a year. This is a little misleading as the growth rate for the first couple of years after planting may be as little

as 6 inches to a foot but after about four years following planting it often takes off and achieves a rate that can exceed 2 feet a year. The tree is best adapted to moist well-drained soils but can be found across a wide range of soil types and pH. There are a few problems with bur oak, most notably two-lined chestnut borer and oak wilt but these have been seen more in native stands, most often disturbed native stands, with few problems occurring in windbreaks. The biggest problem is perhaps deer and without some protection sometimes the trees become a shrub rather than a tree due to the extensive rubbing and browsing.

Mongolian oak (*Q. mongolica*) is another oak that is gaining favor on the Northern Plains and it appears to be well-adapted. The survival and growth rate are similar to that achieved by bur oak. The tree is a little smaller at maturity than our native bur oak, about 40 feet rather than the 60 feet of bur oak. Availability is very limited for this species.

Swamp white oak (*Q. bicolor*) is another oak that is frequently overlooked for planting but deserves more consideration. The tree is native to eastern Minnesota but an isolated stand is found near Granite Falls. It is probably best suited to eastern South Dakota, perhaps east of Hwy 281. The tree has survival and growth similar to bur oak and may be better adapted to poorly drained soils than the bur oak. However it is not as alkaline tolerant and probably is limited to soils with a ph lower than 7.5. There is also a naturally occurring hybrid between bur oak and swamp white oak (*Quercus* x *scheuetti)* that is found in Wisconsin and Minnesota. Craig Brown, a SD Department of Agriculture forester and I found some oaks in native stands in Roberts County that appear to be hybrids and I plan to collect acorns from these trees in 2010.

Hackberry (*Celtis occidentalis*) – is probably the “new” green ash in that it is the frequent replacement for this species. That makes sense as hackberry is native across much of the state, found all the way west to the Cheyenne River. The tree is very hardy, growing north, as a native in the northern regions of eastern North Dakota. Survival in South Dakota has been good, above 90 percent, and a growth rate of about 2 to 2.5 feet per year. It is not too fussy on soils, though is typically found in native stands as a bottomland tree though adapted to drier locations. The tree can be a little hard to tame, often spreading out faster than it grows up for a few years but it does become a nice tree with time. There are a number of minor problems that occur on the tree, most commonly nipplegall, and we did experience a dieback on a number of hackberries several years ago that was unrelated to weather and the stressor is still unknown.

Siberian larch (*Larix sibirica*) – is about as hardy of tree as a tree can be, rated a zone 2 species and it is found growing further north in Siberia than any other tree species. It is not well-adapted to the drier soils of central or western South Dakota where the survival may be only fair, sometimes as low as 40 to 50 percent. The tree does very well in eastern South Dakota where more dependable rains occur and Siberian larch in this region can be found performing nicely on even coarse soils. The growth rate is very good, about 2 feet per year.

The Latest Spell of Cold Weather and Trees

Much of the state has been experiencing sub-zero temperatures during the last month, a trend we are pretty much all fed up with by now. While these cold temperatures are tough on people, livestock and machinery, they will have little impact on trees. Many tree species can tolerate temperatures as low as -30 to even -40^{o}F in mid-winter, a time of maximum hardiness. The "winter injury" we experience in South Dakota is rarely due to mid-winter cold temperatures but the extreme temperature fluctuations that occur as trees are entering dormancy in September through October or exiting dormancy in late March through April. These are the times were temperatures in the teens can result in injury, particularly if they occur suddenly and follow a spell of unseasonable warm weather. Our seemly reversal of typical October-November weather last autumn with a cold October and mild November may result in more winter injury than our current cold snap and it is anyone's guess what is in store for us this coming March and April.

The bunnies are coming!

Rabbits are the perennial critter problem in South Dakota and they are also out in force. Chris, our horticulture educator in Minnehaha County, has reported she is receiving lots of calls about rabbits. When I walked through several shelterbelts just before Christmas many of the small crabapple trees and cotoneaster shrubs were cut off at about 1 foot above the ground as cleanly as if someone walked through with a pair of hand pruners. Rabbits usually chew bark off cleanly on larger trees up to a height of 18 to 20 inches above the snow line (under the snow line it is usually voles or mice doing the damage) and the feeding is most common on crabapples, apples, honeylocust and maples, though few species are exempt from damage. Shrub damage is usually entire twigs or stem cut cleanly at a 45-degree angle. You'll often find small

brown droppings on the snow near the affected plants. What to do to avoid this problem? The best method is to remove any hiding cover; brush and woodpiles are perfect habitat for rabbits and should be removed. Valuable shrub beds can also be fenced off but the fence, typically chicken wire, must be at least 3 feet tall – *above the snow line* – and tight with the ground. Many of the barrier fences that I have seen this winter have not been working as the snow drifts are higher than the fences and better making a nice shelter for the rabbits to eat in!

Repellents work one of two ways, either as odor or taste. There is a relatively new product on the market called **Shake Away** that uses predator urine (fox or coyote) as a means to discourage rabbits from entering an area. This used to be "home-made" but now is available as a commercial product that has an odor almost undetectable to humans. The reports are encouraging and it is probably worth trying. **Garlic stick**s are also used as an odor repellent and these clip-on products have been very effective in some South Dakota gardens though the results have been disappointing in other landscapes.

Capsaicin, the hot pepper taste, is also used as a repellent but I have found some rabbits actually begin to prefer this and will only eat where you have sprayed if you do not put it on thick enough! **Bonide Hot Pepper Wax** contains capsaicin. Also products such as **Deer Away**, that contain putrescent whole egg solids, also have been very effective at repelling deer. However, remember that repellents do not keep the rabbits out of an area, just discourage their feeding on certain plants.

Finally, don't live trap rabbits. No one else wants them either and most animals that are released in unfamiliar territory have a very short life span.